

AN 1986:595473 HCAPLUS  
 DN 105:195473  
 TI Thermomechanical treatment of alloy steel  
 IN Yamaguchi, Toru  
 PA Komatsu, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61124521	A2	19860612	JP 1984-245875	19841122
AB	<p>             Alloy steel contg. 0.5-1% C for drive shafts or gears is thermomech. treated to improve fatigue strength. The steel parts are austempered for Rockwell C hardness 50-60, warm-shot <b>peened</b>, quenched to room temp., and <b>peened</b> with fine shot. Thus, steel specimens (martensite-transition starting temp. 210.degree.) contg. C 0.6, Cr 1, Ni 0.5, and Mo 0.2% were austempered 2 h at 230.degree., <b>peened</b> with coarse shot (0.8 mm diam.), quenched, and <b>peened</b> with fine shot (0.3 mm diam.). The 2nd-stage <b>peening</b> increased the residual compression stress from 100 to 120 kg/mm2 and the max. stress load for rupturing in .gtorsim.1.2.times.105 cycles of fatigue tests from .apprx.139 to .apprx.150 kg/mm2.           </p>				

AN 1989:443488 HCAPLUS  
DN 111:43488  
TI Sheet **peening** of carbonitrided steel parts  
IN Miwa, Yoshihisa  
PA Mazda Motor Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 63227791	A2	19880922	JP 1987-62291	19870316
	JP 2723150	B2	19980309		
AB	The steel parts, e.g., gears, after carbonitriding and annealing are shot <b>peened</b> for improvement of fatigue strength. The <b>peening</b> is done in 2 <b>stages</b> with coarse shot of .1 to req. 1 mm diam. and then with fine shot of 1/3.5 to 1/2 that of the coarse-short size. Carbonitrided, annealed SCM 420 and SCr 420 steel parts are shot <b>peened</b> to show improved fatigue strength.				

AN 1991:564498 HCAPLUS  
DN 115:164498  
TI Manufacture of cutting tools coated for high wear resistance  
IN Katayama, Akira; Imai, Tatsuya; Sawajima, Tetsuo; Imamura, Hiroto  
PA Nippon Steel Corp., Japan; Nittetsu Chokko K. K.; Toho Kinzoku Co., Ltd.  
SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent  
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 02254144	A2	19901012	JP 1989-72003	19890327
AB	The cutting tools from cermet, hard alloy, or high-speed steel are manufd. with a carbide, <b>nitride</b> , carbonitride, oxide, oxycarbide, oxynitride, oxycarbonitride, and/or Al <sub>2</sub> O <sub>3</sub> coatings, and then are shot <b>peened</b> with the impact at 20-120 m/s and angle .gtoreq.30.degree. with fine shot having diam. of 10-2000 .mu.m. Thus, the hard alloy tip (contg. WC 90, TiC 2, TaC 2, and Co 6%) was chem.-vapor coated with TiC, TiCN, and Al <sub>2</sub> O <sub>3</sub> , and then was shot <b>peened</b> with cast iron shot (av. diam. 100 .mu.m) at 80 m/s and 70-90.degree. angle. Service life of the cutting tip was increased by 7 times.				

AN 2000:111093 HCAPLUS  
 DN 132:169339  
 TI Nitriding and shot **peening** of steel springs  
 IN **Ishida, Masaaki**; Utsumaki, Kazuhiro; Isono, Hiroshi; Teratoko,  
 Keiichiro; Yamada, Yoshiaki  
 PA Suncor, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000042922	A2	20000215	JP 1998-214084	19980729
AB	<p>             Springs are surface treated by (A) nitriding and then (B) shot  <b>peening</b> with 20-80 <math>\mu</math>m-diam. hard metal particles at collision              speed <math>\geq 80</math> m/s by controlling instantaneous temp. increase to induce              dynamic strain aging and work hardening by N and to suppress recovery              recrystn. of matrixes. Optionally, the springs are treated by (A), (B) '              shot <b>peening</b> with 0.5-0.8 mm-diam. hard metal particles to give              residual stress, (B)'' shot <b>peening</b> with 0.2-0.4 mm-diam. hard              metal particles to give compressive residual stress and hardness, and then              (B). Alternatively, the springs are surface treated by (C) shot  <b>peening</b> with 0.3-0.8 mm-diam. and Vickers hardness <math>\geq 500</math>              hard metal particles at collision speed <math>\geq 60</math> m/s to give residual              stress, (B), and then nitriding. Resulting springs have high durability              and resistance to fatigue fracture.           </p>				

AN 2000:612158 HCAPLUS  
 DN 133:196560  
 TI Surface nitridation of springs for durability and fatigue fracture resistance  
 IN Ishida, Masaaki; Uzumaki, Kazuhiro; Isono, Hiroshi; Teradoko, Keiichiro; Yamada, Yoshiaki  
 PA Suncor, Inc., Japan; Fuji Mfg. Co., Ltd.; Fuji Kihan K. K.  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000239741	A2	20000905	JP 1999-41865	19990219
AB	<p>Spring surface is treated by (A) surface nitridation and (B) shot <b>peening</b> with hard metal particles, having hardness equal or lower than the surface hardness (micro-Vickers hardness of .apprx.5 .mu.m depth from the surface) of the treating surface, particle diam. 20-100 .mu.m, and sp. gr. 7.5-9.0, under certain shot <b>peening</b> speed with controlling the momental temp. increase limit (due to collision of the particles) of the Fe matrix to cause process hardening and stress aging with N atoms but not to cause surface softening due to recovery recrystn. The shot <b>peening</b> speed is controlled to (1) 70-200 m/s or (2) 95 m/s .+- .20% (76-114 m/s). The spring may be pretreated by (a) shot <b>peening</b> of hard metal particles (Hv 500-800 but softer than the treating surface, diam. 500-900 .mu.m) at 50-90 m/s for generation of compressive residual stress into the core part of the spring, without generation of microcracks on its surface. The spring may also be pretreated, between process a and process A, by jetting of hard metal particles (hardness lower than the treating surface, diam. 0.2-0.4 mm) for increase of the compressive residual stress and hardness. The springs are esp. suitable for use in internal combustion engines.</p>				